

ROADMAKING WITH OIL

Method of Construction Valuable For Dirt and Macadam.

PRACTICALLY SELF HEALING.

Oiled Highways Are Not Only Dustless, Mudless and Noiseless, but They Improve With Use—Oil Makes Roads Firm, but Not Hard.

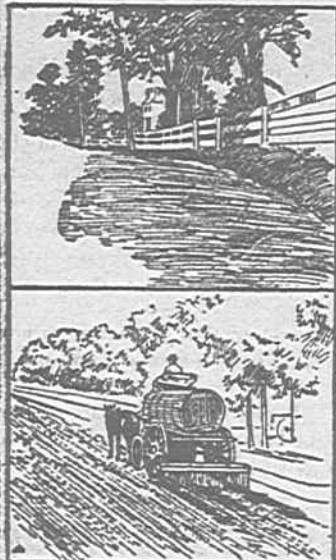
In the opinion of H. T. Snell, who has made a study of city and country roads in twenty states in the last year, more good roads will be built in Kansas during the next twelve months than in any other state in the Union. Mr. Snell investigated road conditions for the Standard Oil company. The big trust is seeking a market for its surplus of oil left after the more valuable products have been taken from it. The surplus oil is now sold chiefly for fuel.

The company expects to build a mile of good road near the State Agricultural college at Manhattan, Kan., Mr. Snell said. "We expect to show by the experiment that an oiled road, whether built with earth or crushed rock, is not only the most durable, but in the end is the most economical.

"In every state there is annually spent millions of dollars in building new roads. In few cases is any considerable sum spent on the roads to preserve them. Oiled roads are not only dustless, mudless and noiseless, but they are practically 'self healing'—that is, they improve with use. The dirt and oil roads give horses good footing, while the tires of the vehicles 'iron out' the hoof marks."

Experiments made on Kansas City boulevards and on roads in Jackson county, which were coated with oil, have been watched by men and organizations interested in good roads. The use of oil on boulevards and roads in Jackson county was among the earlier experiments in its use. Adopted for use to prevent dust, it was found that oil also is a preservative. In his report to the board of park commissioners on the use of oils on Kansas City boulevards, W. H. Dunn, superintendent of parks, said the results were "remarkable."

The city paid an average of 7 1/2 cents a barrel of forty-two gallons for



DIRT ROAD AFTER ONE OIL TREATMENT AND METHOD OF APPLYING THE OIL.

the oil. An area equal to 1,010,560 square yards was oiled. The cost of oiling per square yard was slightly more than 1 cent, representing the oil, labor and supplies. The oil subdued dust. Had the same area been sprinkled with water to prevent dust the cost would have been 2.4 cents per square yard. Mr. Dunn estimated that the cost of sprinkling the area oiled last summer would have been \$16,207.22. The expense of oiling this area was \$10,671.44. The direct saving in using oil was \$5,535.88, or 34 per cent. The indirect benefit followed in a marked saving in the cost of maintaining the boulevards and the uniform excellence of their condition.

Good roads naturally are a rural problem. In the cities no progress can be made unless the thoroughfares used for business and pleasure are paved and maintained in good condition. Country towns are concerned as much with good roads as are the farmers who use them. In country towns business practically is at a standstill in rainy seasons. Bad roads keep the farmers at home. If the farmer had a fit thoroughfare to the village he could do his trading on days when he could do no tasks in the fields. It is far more desirable that the farmer should visit his nearest town in the rainy season than at any other time, as the commodities he has to sell command the highest prices when rain keeps him at home.

The regents of the Kansas State Agricultural college were among the first of the governors of agricultural colleges in the United States to realize the vital concern which good roads are to farmers. Not only was there the feature of poor roads following rain,

but there was the every day feature of ruts, pools and poor roadbed generally.

The college board of regents named Albert Dickens to take charge of experimental road work in Kansas. Mr. Dickens selected one-fourth of a mile of road west of the reformatory at Hutchinson to use in the first experiment. He reported upon the test as follows:

The soil was a fair sample of the sandy loam of the Arkansas valley. At the date of its selection no rain had fallen for ten days. The sand was several inches deep. Loads consisting of fifty bushels of grain made an exceedingly heavy load for a strong draft team. A good carriage team required much urging to pull the carriage faster than a walk.

After the grading was completed and the roadbed was well formed where fills were required the entire road, one-fourth mile in length and thirty feet wide, was plowed to a depth of about four and one-half inches and thoroughly pulverized with a harrow and disk. A disk, set straight, was run before the oil sprinkling tank to open small furrows, and a harrow followed the oil sprinkling tank to thoroughly mix the soil and oil.

The oiling was done the first days of October. The oil was not heated. The tank of 500 gallons would cover about 3,800 square yards once. The harrow followed each application. When one gallon to each square yard had been applied the soil seemed nearly saturated to the depth of the plowing, four and one-half inches. After harrowing the last time a heavy float was used to smooth the surface. In a week the road was sufficiently firm to allow rolling. A twelve top roller was used, going over the road several times until it seemed to be thoroughly firm. After a week the road was used by all kinds of traffic. It was firm, but not hard. A sharp shod horse left the calk marks plainly outlined, but did not tear up the soil even when driven at a quick trot.

One reason for building the road in the fall was to note the effect of freezing weather. The road was not seriously affected. It seemed that the coating of oiled soil kept the underlying soil sufficiently dry to prevent serious heaving by frost.

Mr. Dickens ended the report by saying that the road is in good condition. Under his direction roads also were built near the Agricultural college in black loam; at Maple Hill, in the Mill creek valley, in soil known as "gumbo;" at Garden City, in "as bad a stretch of road as can be found anywhere," being of sand, which absorbed the oil in places to a depth of sixteen inches, and the race track at Manhattan, which was said to have been improved so much that a widely known trainer of horses, C. B. Michael, terms it a "first class training track."

The cost of the roads varied from \$525 to \$1,300 a mile, Mr. Dickens reported. The average cost of a road eighteen feet wide, three miles from the railroad delivering the oil, is placed by Mr. Dickens at \$660.

The oil used for roadmaking purposes embodies a quantity of asphalt. The California oil is best for the purpose. Texas oil ranks next, with Kansas third. The eastern oils have a base largely paraffin. They must be treated and asphalt added to make them useful in roadmaking.

With proper construction and the use of oil as a binder for dirt and macadam roads the farmers virtually may have asphalt roads past their homes, declare advocates of this method of road construction.—Kansas City Star.

GOOD ROADS IN SWEDEN.

Every Landowner Must Keep His Section of Highways Improved.

G. Zergkist of Climax Springs, Mo., who is especially interested in the Kansas City Star's fight for good roads, says: "Perhaps it would be of interest to know how the roads in Sweden are maintained. There are three classes of roads there—highways, village roads and private roads. The highways run between county seats, and the grades are limited to 2 1/2 per cent. The village roads cannot be in excess of a 4 per cent grade. The cost of building is divided among the landowners according to acreage, whether it is government land or is owned by private citizens, except where one owner has an extremely costly road to build along his land. In that case he gets due allowance in distance for the cost of construction. No village road can be opened until it is built to the proper grade.

"As to maintenance, every landowner must keep his section of the road properly improved. If he does not a government inspector orders the improvement at public expense, and if the landowner fails to pay the cost the government takes a sufficient amount of his personal property and sells it to satisfy the judgment.

"Every man must maintain his own roads in that country under government supervision. One provision of the government law in Sweden also is that the driver is not allowed to ride up the hills on a loaded wagon if it is necessary to use a whip on his horse."

Road Improvement in Cuba.

One of the beneficial results of the American occupation of Cuba has been the establishment of an adequate system of roads and the beginning of construction. These roads are built primarily for the marketing of crops, but they are used extensively by automobiles as well. They are made uniformly thirty-four feet wide, with sixteen feet of macadam in the center.

The surface finishing is placed on a foundation of ten inches of broken rock, and they have no grades greater than 6 per cent. Bridges are of steel, culverts of concrete. Ditches are dug in the low places, and the roadway is generally elevated above the level of the contiguous land. The main road is complete from Havana to San Cristobal and from Pinar del Rio to Esperanza, besides numerous short branches.

Bills For Better Roads.

In the Iowa legislature two bills have been introduced in the interests of better roads. One provides for the doubling of the county road tax levy, for the development of the most important roads which radiate from the principal market town in each county. The other bill places a tax of \$5 on all automobiles under thirty horsepower and \$10 on thirty horsepower and over, the proceeds to go into the state good roads fund.

Good Road's Great Value.

A good road is a convenience and a necessity. It helps both the buyer and seller of farm produce. It is invaluable to farmer and merchant alike.

FROM LEFT TO RIGHT.

Is the Habit a Legacy From the Old Sun Worshipers?

The halfback, about to be tackled, stopped, then darted in a long curve toward the right. He was soon downed.

"The other side knew he would turn from left to right," said a veteran. "We all turn from left to right. To turn from right to left seems wrong, seems like reversing. We wind a watch from left to right, we turn a screw so, and so we write, and so we read.

"It all comes down to us from prehistoric times, from the sun worshipers. The sun moves from left to right, and its worshipers believed that all human actions must proceed accordingly. Well, they still do so.

"Churning is done as the sun moves, and there's a superstition that one reverse turn of the handle will spoil the butter.

"Cooks stir batter from left to right. A reversal, they say, would make the batter coarse and heavy.

"Shut your eyes and turn thrice. Don't you naturally instinctively turn from left to right?

"Whalers put back again if the ship's first movement at the beginning of the voyage is not from left to right.

"In a subconscious way, you see, sun worship is still the religion of man."—Exchange.

THE CANNON ROARED.

How an Ovation by a Youthful Demosthenes Was Spoiled.

While campaigning in his home state Speaker Cannon was once inveigled into visiting the public schools of a town where he was billed to speak.

In one of the lower grades an ambitious teacher called upon a youthful Demosthenes to entertain the distinguished visitor with an exhibition of amateur oratory. The selection attempted was Byron's "Battle of Waterloo," and just as the boy reached the end of the first paragraph Speaker Cannon suddenly gave vent to a violent sneeze.

"But hush, hark," declaimed the youngster—"a deep sound strikes like a rising knell! Did ye hear it?"

The visitors smiled, and a moment later the second sneeze—which the speaker was vainly trying to hold back—came with increased violence.

"But hark!" (bawled the boy)—"that heavy sound breaks in once more, and nearer, clearer, deadlier than before! Arm! Arm! It is the cannon's opening roar!"

This was too much, and the laugh that broke from the party swelled to a roar when Uncle Joe chuckled: "Put up your weapons, children. I won't shoot any more."—Success Magazine.

Prizes For Good Highways.

At a recent meeting of the Good Roads league for Talbot county, in Maryland, it was decided to offer awards for good roads. Prizes aggregating \$360 will be given where the split log drag is used, as follows: First, \$50 for best improved mile of road within a radius of eight miles of Easton; second, third and fourth prizes, \$40, \$30 and \$20 respectively. A prize of \$25 will be paid for the best improved half mile of road on each of the rural routes originating in Easton. Other prizes will be \$15, \$10 and \$5.

Tarring of Roads.

Road tarring is becoming a habit in the automobile districts of England. The old method of applying with hand brushes is now being abandoned in favor of the use of an apparatus which is nothing more or less than a giant air brush. The tar is in a large tank, and two men pump air into it, while a third goes about the road with a pipe having four outlets through which the air throws the tar in fine spray. This rapidly and thoroughly coats the road. Sand is then sprinkled, and the dust is laid for good.

Eat What

You want of the food you need
Kodol will digest it.

Our Guarantee

Go to your druggist today, and purchase a dollar bottle, and if you can honestly say, that you did not receive any benefits from it, after using the entire bottle, the druggist will refund your money to you without question or delay.

We will pay the druggist the price of the bottle purchased by you.

This offer applies to the large bottle only and to but one in a family.

We could not afford to make such an offer, unless we positively knew what Kodol will do for you.

It would bankrupt us.
The dollar bottle contains 2 1/2 times as much as the fifty cent bottle.

Kodol is made at the laboratories of E. C. DeWitt & Co., Chicago.

ESTABLISHED 1862.

THE REGISTER.

ONE DOLLAR A YEAR.

CIRCULATION 2,000.

EVERYBODY READS IT.

Will Always be Found Pulling for the Best
That is Good for our Town, County and State.

Be careful about that little cough. Get something right away; some good, reliable remedy that will move the bowels. Kennedy's Laxative Cough Syrup acts gently yet promptly on the bowels and allays inflammation at the same time. It is pleasant to take and it is especially recommended for children, as it tastes nearly as good as sugar or maple sugar. Sold by all druggists.

Beware of To-morrow.

"To-morrow" is a word which is only found in the fool's calendar and stands for nothing that is real and tangible, just the baseless stuff of which dreams are made, a fantastic vision of anticipations in the shadow land of the future. Put no trust in to-morrow; it may be a bankrupt investment. To-day is the best bank.

How's This?

We offer One Hundred Dollars Reward for any case of catarrh that cannot be cured by Hall's Catarrh Cure. F. J. Cheney, Toledo, O.

We, the undersigned, have known F. J. Cheney for the last 15 years and believe him perfectly honorable and financially able to carry out any obligations made by his firm.

Welding, Kinnan & Marvin,
Wholesale Druggists,
Toledo, Ohio

Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Testimonials sent free. Price 75c per bottle. Sold by all druggists. Take Hall's Family Pills for constipation.

Young People Will Kiss.

"What do you think of this anti-kissing crusade in Indiana?" "Oh, I dare say most of the young people there will set their faces against it."—Baltimore American.

Kodol is today the best known and most reliable remedy for all disorders of the stomach, such as dyspepsia, heart burn, sour stomach and belching of gas. Kodol contains the same juices found in a healthy stomach. Kodol is pleasant to take. It is guaranteed to give relief and is sold here by all druggists.

The Simple Life.

A university life is in some respects like that of a monastery; the inmates are to a great degree protected from the evil world outside. The standards of ethics are higher, and there is greater faith in one's fellowmen. Every swindler knows that a college professor is usually an "easy mark."—The Independent.

Cured Hay Fever and Summer Cold.

A S Nusbaum, Batesville, Ind., writes: "Last year I suffered for three months with a summer cold so distressing that it interfered with my business. I had many of the symptoms of hay fever, and a doctor's prescription did not reach my case, and I took several medicines which seemed only to aggravate it. Fortunately I insisted upon having Foley's Honey and Tar. It quickly cured me. My wife has since used Foley's Honey and Tar with the same success." Sold by all druggists.

Renunciation.

"I have always been a good friend to you, Mrs. Jinx," said Mrs. Lapeling, with blazing eyes, as she rose to go; "but I am a friend no longer. You have talked about my husband. Right here is where our paths diverge. Good afternoon."

How to Avoid Appendicitis

Most victims of appendicitis are those who are habitually constipated. Foley's Orino Laxative cures chronic constipation by stimulating the liver and bowels and restores the natural action of the bowels. Foley's Orino Laxative does not nauseate or gripe and is mild and pleasant to take. Refuse substitutes. Sold by all druggists.

True Wisdom.

Wisdom is habited in the plainest garb, and she walks modestly, unheeded of the gaping and wondering crowd. Her secrets are revealed to the careful, the patient and the humble.—Bishop Spalding.

The Finest Ambition.

There is a loftier ambition than merely to stand high in the world. It is to stoop down and lift mankind a little higher.—Henry van Dyke.